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(71) Applicant: MATSUSHITA ELECTRIC IND CO LTD

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(72) Inventor: TAKAHASHI KEIICHI  
NISHIDA MASAMITSU  
KUGIMIYA KOICHI

(54) PIEZOELECTRIC ELEMENT MATERIAL AND ITS  
PRODUCTION

(57) Abstract:

PURPOSE: To enable sintering even at a low temp. by using Pb-contg. ceramics having a specified average grain size and a specified grain size distribution and to obtain a piezoelectric element material having improved piezoelectric characteristics of piezoelectric ceramics by controlling the fine structure of the Pb-contg. ceramics.

CONSTITUTION: This piezoelectric element material contains Pb-contg. ceramics having 0.5-5 $\mu$ m average grain size and a grain size distribution in which  $\leq$ 90wt% grains are within the range of 0.5-5 $\mu$ m. The basic compsn. of this material is preferably represented by the general formula  $Pb_{1-a}Sr_x(Mg_{1/3}Nb_{2/3})_aTi_bZr_cO_3$  (where  $a+b+c=1$ ,  $0.20 \leq a \leq 0.30$ ,  $0.30 \leq b \leq 0.45$ ,  $0.30 \leq c \leq 0.40$  and  $0.01 \leq x \leq 0.20$ ) and  $0.01-0.2wt\% Fe_2O_3$  is preferably added to the basic compsn.

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